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NATURE STUDY

AND

AGRICULTURE COURSE

FOR USE IN THE PUBLIC SCHOOLS
OF NEW BRUNSWICK

PREPARED BY

R. P. STEEVES, M.A.

DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION

Authorized by the Board of Education.
September, 1908.

REVISED AND ENLARGED.

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Course of Instruction in Nature Study and Agriculture.

Approved by the Board of Education, April 23 1914.

Country Schools (Ungraded).

GRADE I.

As in authorized Nature Study and Agriculture Course, with School Gardening, where possible. Drawing. Study and care of the home.

GRADE II.

As in authorized Nature Study and Agriculture Course, with School Gardening, where possible. General local geography. Estimation of distances, sizes and weights in a general way. Drawing of common objects, as fruits, vegetables, simple leaves, domestic animals, etc. Study and care of the home, continued.

GRADE III.

As in authorized Nature Study and Agriculture Course. School Gardening, where possible. Field excursions, with out-door lessons. Language exercises, both oral and written, based on work done in Nature Study. Household Economy.

GRADE IV.

As in authorized Nature Study and Agriculture Course. School Gardening, where possible, continued. Experimental School and Home Plots. Introductory Household Economy (practical where possible).

GRADE V.

As in authorized Nature Study and Agriculture Course. Agricultural experimentation. Insects, weeds, soils, economic plants and animals. Elementary Chemistry of Oxygen, Hydrogen, Nitrogen, and Carbon. Photosynthesis, Respiration, Transpiration in plants. Show presence of starch, sugar, water, mineral matter, etc., in plants. Simple analysis of starch, sugar, wood, etc. School gardening, continued. Sanitation. Household Ecomony.

For Graded Schools.

GRADE I.

As in authorized Nature Study and Agriculture Course, with School Gardening, where possible. Drawing. Study and care of the home.

GRADE II.

As in authorized Nature Study and Agriculture Course. School Gardening, continued as above. General local geography, estimation of distances, sizes and weights in a general way. Drawing of common objects, as fruits, vegetables, simple leaves, domestic animals. Study and care of the home, continued.

GRADE III.

Selected work from authorized Nature Study and Agriculture Course for Grade III, ungraded, with School Gardening as above. Language exercises, both oral and written, descriptive of observation lessons. Study and care of the home, continued.

GRADE IV.

Authorized Nature Study and Agriculture Course for Grade IV, ungraded, completed. School Gardening, where possible. Field excursions, with out-door lessons. Oral and written language exercises, continued. Study and care of the home, continued.

GRADE V.

Selected work from authorized Nature Study and Agriculture Course for Grade IV, ungraded. School Gardening, where possible. Experimental school and home plots. Paragraph descriptions of particular trees, birds, insects, etc., and accounts of work done or observations made. Introductory Household Economy.

GRADE VI.

Authorized Nature Study and Agriculture Course for Grade IV, ungraded completed. School Gardening, where possible. Short essays on Nature Study subjects of local interest. Experimenta School and home plots. Household Economy.

GRADE VII.

Selected work from authorized Nature Study and Agriculture Course for Grade V, ungraded. Agricultural Experimentation and Practical School Gardening, where possible. Soils, their composition. Introductory work in Chemistry (Oxygen, Hydrogen, Nitrogen, Carbon). Household Economy. Essays on parish and county industries and developments.

GRADE VIII.

Authorized Nature Study and Agricultural Course for Grade V, ungraded, completed. School Gardening, where possible. Plants and animals, their composition and food. Elementary Chemistry, continued. Photosynthesis Respiration, Transpiration, in plants. Show presence of starch, sugar, waste, mineral matter, etc., in plants. Simple analysis of starch, sugar, wood, etc. Household Economy. Competitive practical work in Agricultural lines, chiefly at home. Essays on subjects suggested by practical work done.

Education Office,
May 1st, 1914.

W. S. CARTER,
Chief Sup't. Education.

INTRODUCTION TO NATURE STUDY AND AGRICULTURAL COURSE.

The following Nature Study Course is intended for use in our rural common schools. The purpose has been to provide teachers with a definite graded plan for regular, continuous work.

The value of Nature Study is now generally conceded. No apology, therefore, is needed for it as a unit in a curriculum. As a basis for science teaching in secondary grades, it is indispensable. As an element of common school education it has peculiar worth. By such study children are led to form habits of intelligent observation and thought, home and school interests are intimately connected, a close knowledge of environment is acquired, and the flora and fauna of the country become better known.

In the Course now submitted Nature Study is correlated with other subjects of instruction, such as arithmetic, spelling, composition, drawing, history and geography. Each helps the other. Thus the greatest value is secured for the time spent. To carry out this Course successfully teachers will find it necessary to devote a little time daily to systematic schoolroom work, for which careful preparation has been made. Frequent short excursions to neighboring fields as opportunity offers, will enable the teacher to give valuable aid to the pupils by directing observation and suggesting thought. Thus by having their interest aroused pupils will be encouraged to do work on their own account. Thus, too, by the activity of the teacher and the growing intelligence of the pupils, will Nature Study gain in public favor.

How to observe is quite as important as how to study. Out-of-door work to be profitable must be as orderly and well conducted as class work in the schoolroom.

To those whose education ends with the country school the habit of observing and recording, of reasoning, judging and estimating, will be found most useful, while to those who continue at school in the higher grades it will prove of the utmost importance especially in the science studies.

Reports showing in detail the work done month by month are required to be made by the teacher to the Inspector during the last school week in December every year. This report is also required to contain specific answers to the following question. :

1. What effect has your Nature Study teaching under this Course had on your school?
2. Have you been able to do better or less effective work in other school subjects by correlating Nature Study with them?
3. Has the work interested your pupils?

4. What is the sentiment of ratepayers toward Nature Study work?

5. What, in your opinion, are the reasons for this sentiment?

It is believed that Nature Study is not an added burden to the teacher's task. It deals with life and action near at hand, and consequently invigorates and relieves from monotony many schoolroom problems. Much can be done out of school hours by pupils, at home and on the road to and from school. The wisdom of the teacher will be felt, in guiding and stimulating endeavor by the pupils and in personally leading the way, in collecting information, inciting questions by pupils, in reporting, making drawings, asking questions, and in always encouraging and commending effort on the part of the pupils.

A cabinet will always be found a useful piece of furniture in the schoolroom. Where Nature Study is effectively taught a cabinet is a necessity. Much interest is dissipated when collections are not properly cared for. A cabinet should be large enough to hold the smaller apparatus of the school when not in use and also to afford room for reports, bulletins, records, reference and library books. It should be kept locked except during school hours, or when the teacher is present.

Supplementary reading of a helpful character may be found in the animal stories of Chas. G. D. Roberts and Ernest S. Thompson, selections from standard works of fiction descriptive of village and country life and scenery in Canada and other countries, the best pastoral poetry of our own and other times, and articles from current Canadian magazines dealing with particular localities in New Brunswick and other parts of Canada.

A Bird Calendar should be carefully kept in every school, teacher and pupils acting together. Birds are to be observed, described and named. Their coming and departure should be accurately noted, their habits studied, and lessons given as to their food and economic value. The study of birds affords an excellent training for the ear as well as the eye. The cultivation of the sense of hearing has received too little recognition in schools. Not only do the notes and songs of birds give us material to be used to advantage in this regard, but many other features of Nature Study are valuable for the same purpose.

A Flower Calendar will also be found of great advantage. It is a record of the first known appearance in spring of bloom of wild plants. The date of finding, where found, name of plant, by whom found, are the principal items to record.

Observations of flowers and birds furnish data for the study of local geography and the variations of climatic conditions.

Both Bird and Flower Calendars should be kept on file for reference and comparison from year to year. The record of many years of faithful observation will prove of great interest and of historic value in the District.

In large ungraded schools having pupils in all grades with only one teacher it may be found advisable to combine two grades for Nature work. In such cases selections from the work laid down for the grades combined, as the teacher finds best adapted to the intelligence of the pupils, should be made, the remainder of the work being left for the next year.

This Course is arranged for Ungraded Country Schools. The following arrangement will be found applicable to Graded Schools:

Grade I (Ungraded) equals Grade I (Graded)
Grade II (Ungraded) equals Grade II (Graded)
Grade III (Ungraded) equals Grades III and IV (Graded)
Grade IV (Ungraded) equals Grades V and VI (Graded)
Grade V (Ungraded) equals Grades VII and VIII (Graded)

R. P. S.

This pamphlet becomes the property of the School District. The teacher should take care to attach it to the inside of the Register cover at the front, for preservation and ready use.

In no case should it be taken by a teacher leaving a District.

INTRODUCTION TO 1914 REVISION

With the change of the Nature Syllabus for Common Schools and the introduction of Agricultural Instruction as an element of school work, the revision of this Course has become desirable.

The leaflet first published and authorized in 1908 was in 1911 revised and enlarged. It has been in use in many of the Common Schools. The Nature Study Syllabus approved by the Board of Education in April last, and the Regulations made to carry into effect the changes in the Schools Act relating to Elementary Agricultural Education, are incorporated with this Revision and represent in compact form the prescribed work in Nature for the first five or eight grades of the school curriculum of this Province.

The work of the months of each grade has been classified under the headings, **Plants, Animals, Physical Nature** and **Environment.** Some few changes have been made in the items of study.

It is expected that the work of the early grades will be general and to some degree incidental, and that in the more advanced grades a greater degree of analysis will be reached with more accurate knowledge as a result.

The fact is emphasized that the school is first a local institution, and exists for the benefit of the pupils as residents of their particular Districts, and that outdoor as well as indoor elements are contained in the process of education. The near at hand and the present as well as the far away and the past contribute to man's progress and development.

Natural methods of teaching are suggested not only for practice in Nature Study but for adoption in teaching all subjects in the elementary grades.

It may be that more work is laid down for some months than can be properly carried out. In such cases, subjects that are best adapted for study in the locality and that will therefore assist most in the education of the pupils, should be taken up.

Attention is again called to the advisability of daily weather records, and of thevalue of local history, and the need of preservation in the schools of such records.

The list of books recommended has been increased. Teachers will find any or all of these helpful.

R. P. STEEVES.

NATURE STUDY AND AGRICULTURE WORK FOR GARDES III, IV AND V (UNGRADED SCHOOLS) AND GRADES III, IV, V, VI, VII, VIII. GRADED COUNTRY SCHOOLS.

WEATHER REPORT.

Weather Report systematically and carefully kept throughout the School year. Pupils taught to observe daily conditions and to record the same accurately.

An ordin exercise book will be found sufficient for the purpose. A double page ruled after the accompanying plan serve for a month's use.

Record b may be kept for a week by two pupils, leader and alternate, under direction of teacher. Following week alternate to become leader with new pupil as alternate, and so on.

Record book to be hung near teacher's desk and to be available at proper times. Every year's record to be preserved in library.

PLAN OF WEATHER REPORT.

Date	Direction of Wind		Calm	Temperature		Rain or Snow		Appearance of Sky		Special Notes
	A. M.	P. M.		A. M.	P. M.	A. M.	P. M.	A. M.	P. M.	
Sept.										
1	N. W.	W*		55 deg.	60 deg.	....		C'r	some C'ds	.
5	S. W.	S.		v, W.	W.	R.	.	h. Clouds	cloudy	......
17	S.	S. E.	.	C'l.	W.	R.	R.	Cloudy	cloudy	Line gale, very severe.
22			C'm	50 deg.	68 deg.		..	C'r.	C'r	

Teachers are recommended to obtain a thermometer for the use of the school.

A weather vane and a rain gauge of the simplest construction would also be found very useful in securing accuracy.

If school has no thermometer, indicate temperature thus, v. W., very warm; W., warm; C., cold; e. C., extremely cold, and so on. R. for rain; Sn. for snow; Sl. for sleet; C'd. cloud; h. C'd. heavy cloud; l. C'd. light cloud; C'm. for calm. *may indicate strong in wind column. C'r. clear. Under the heading "Special Notes," may be recorded, line gale, severe thunder storm, very heavy fall of snow, breaking up of rivers in spring, first ploughing, first hay cutting, and other occurrences indicating climatic conditions and events of local importance.

GRADE I.

SUGGESTIONS TO PRIMARY TEACHERS.

The beginning of school life is a critical period in the history of the child. Much of his interest, attention and success in school depends upon the incline his nature is given toward the work he is required to do during the first year. His relation towards the persons and things through which he has obtained the knowledge and experience he possesses at six years of age has been one of pleasureable activity and almost unbounded freedom. His senses have been the channel of development. His ability to use language has grown through his desire to tell others of what he has seen, heard, touched, tasted and smelt, and to express his thoughts about his surroundings. Because the objects near him interest his mind he asks questions that he may know more about them and what others think of them.

If now the primary teacher is to hold the attention and develop the interest of the pupil just arrived at school she must recognize what knowledge the child possesses and the channels through which it has been acquired. Lessons of an abstract nature on words, number exercises with supposed questions, and forms without meaning to the child should be deferred. The child's plane of activity will suggest the concrete material that claims his attention, and through this medium his education will best continue and develop under the skilful management of the trained, thoughtful teacher. Assisted and directed observation, orderly arrangement, varied occupation and general instruction will all play their part in the process. To stimulate, promote and regulate the pupil's desire to know is the worthy aim of the teacher.

Thus nature work may be made the connecting link between home and school activities, between the loose, free life of the child prior to school age and his regular connected duties at school. The knowledge acquired through the free exercise of the child's powers provides an incentive to work which strengthens through similar exercise now directed and regulated. A substantial foundation is laid for a gradual transition from concrete to abstract subjects, with all the time a growing interest in the work.

The Nature work of the first year should be very largely of a general character, with the object of training children to observe intelligently, of fostering in them an appreciation of the physical features of the home section, of having them truly know some things, and of giving a bent to their mental activities, relating them pleasurably to the conditions of their surroundings. Their principal instruction during the first few months might well be chiefly through nature. To this end the wild flowers, the brids, the domestic animals, the brook or stream or lake, the fields of growing grain, the fences, pasture land and forest, the rocks, the shore, any attractive spot, these or any of these, or others that the particular locality affords, will furnish material that will enable the teacher to do her best for the child. Let the teacher show an interest in the natural features of the District the little ones take pleasure in, let her cultivate this interest by observation and study.

Lead the children to talk freely about what pleases them. From what they know, lead them to observe and acquaint themselves with new facts. To win the confidence of the child, to have him become free, natural and easy in manners and conversation, while at the same time training and instructing him, is the teacher's great purpose. The school home is one room of the nature home, full of new interesting things to do, new facts, new thoughts. Know the child by knowing his pleasures, tastes, desires, and lead him to know and trust you so far as circumstances may permit, keep both the mind and body of the child busy. Secure training, interest, attention and development through action.

SEPTEMBER.

PLANTS.—Bring wild flowers to school. Have pupils bring some of same kinds first; afterwards of different kinds. Talks about localities where flowers are found. Notice various colors of bloom. Lessons on life, color, perfume and form. Lessons on fruits. Collect bright colored leaves. Use these for lessons.

ANIMALS.—Domestic and pet animals and birds. Observation of at least four insects.

PHYSICAL NATURE.—Talks about rain, water, clouds, pebbles, stones.

OCTOBER.

PLANTS.—The falling leaves. Lessons on the potato and cabbage.

ANIMALS.—Notice locomotion of horse, rabbit, snake, toad, bird, fish. Describe movements. Observation of two wild birds common to district.

ENVIRONMENT.—Common articles in home, school, field, shop and woods.

NOVEMBER.

PLANTS.—Count the kinds of trees and shrubs in school ground and vicinity. Which ones have dropped their leaves?

ANIMALS.—How do animals prepare for winter? Lessons on the squirrel.

PHYSICAL NATURE—Observe frost in the morning sunshine as seen on grass, trees, stones and exposed boards. Follow these observations with short lessons on ice. Have conversations about the fire in stove, smoke from chimney, the nearest stream or hill. Sounds of fire, running water, wind.

ENVIRONMENT.—Carriage, harness, ship and boat — lessons with view of distinguishing parts of each.

DECEMBER.

PLANTS.—Lessons on two evergreen trees or shrubs.

ANIMALS.—Short lessons on the cat, its food, how obtained, its fur and claws

PHYSICAL NATURE.—Notice when snow sparkles most. How many colors can you distinguish? Give short lessons on the frost pictures on the window pane. Find some things that are either smooth, white, soft, rough, cold, hard, heavy, bitter, round, sharp, pretty.

ENVIRONMENT.—Santa Claus stories about our own and other countries.

JANUARY.

PLANTS.—Lessons on house plants. Lessons on the sleep of plants in winter, their covering or protection.

ANIMALS.—What farm animals eat hay? Which eat grain but not hay? Observe them eat. Tell what you learn. What calls of animals are heard in winter?

PHYSICAL NATURE AND ENVIRONMENT.—Notice the sun and the moon. Give short lessons on their rising and setting. Lessons on location, as right, left, up, down, across, under, near, in.

Where can you coast? Lessons on surface, the appearance of snow after rain. Stories told, illustrated by pictures, of children in other lands in winter.

FEBRUARY.

PLANTS.—Trees in winter. Make drawings. Winter appearance of buds.

ANIMALS.—Notice footprints on snow, the tracks of animals, size, shape and depth. Make drawings of these.

PHYSICAL NATURE.—Lessons on icicles and snowdrifts.

ENVIRONMENT.—Lessons on clothing, of what made, degrees of warmth, etc. Care of caps, boots, mittens, coats. Their proper places when not in use.

MARCH.

PLANTS.—Swelling buds, flow of sap, and bark of trees. Make observations on the foregoing.

ANIMALS.—Have pupils cut from paper forms of animals learning the names of some parts, as mane, wing, horn, bill, fleece. Lessons on returning birds.

PHYSICAL NATURE.—Give lessons on lengthening days, melting snow, hill, hollow, level, pond, stream. Use outdoor conditions to illustrate teaching. What portion of school ground becomes bare first? Why is this?

APRIL.

PLANTS.—Notice where the grass begins to grow first and best. Find reasons. Sprout seeds. Observe development of buds.

Observe germination of small seeds. To do this place two sheets of wet blotting paper together. Scatter seeds over the wet surface. Place sheet of glass size of paper above, turn the pad over, then scatter other seeds on second wet surface; place a second glass over same. Then tie both pieces of glass with wet pad between them firmly together. Keep moist and warm and in the light. The seeds as they sprout can be observed through the glass on both sides.

ANIMALS.—Carefully observe and distinguish notes and calls of spring birds and other animals. What young domestic animals have you seen this spring? Returning birds. Have list kept.

PHYSICAL NATURE.—The brook, soil.

ENVIRONMENT.—Examine playthings as to shape, size, and other properties.

MAY.

PLANTS.—Plant larger seeds, such as bean, pea, in damp earth. Keep warm. Watch development. Teach pupils to know some common farm and garden seeds by sight. Make drawings of some simple leaves.

Encourage pupils to bring blossoms, such as violet, dandelion and earlier kinds. Keep a list of flowers brought.

ANIMALS. –How do animals show fear? Notice, and learn words to properly describe the different ways.

What are the birds doing? Watch them. Let teacher give lessons founded on pupil's observations.

ENVIRONMENT.—Have talks with pupils about farm and garden operations this month.

JUNE.

PLANTS.—Talks about the fragrance of blossoms. Distinguish some flowers in this way. Read or tell stories of countries where blooming plants are more luxuriant than ours. Lessons on buttercup, fruit blooms, etc.

ANIMALS. –Observe bees and birds at work. The nesting of birds. Common insects. Kindness to animals. Lessons on the horse.

ENVIRONMENT.—Observe the uses of the plough, hoe, spade, hammer, halter, wrench.

CRADE II.

SEPTEMBER.

PLANTS.—Collect some of the most common weeds in the District. Give short lessons on them, giving names.

Give short lessons on the grains of the District; also berries as to color, form, use. Collect grass and clover heads.

ANIMALS.—Observe summer birds, their habits, colors of plumage, their young ones. Distinguish six kinds of birds. Describe them. Learn names. Find locations of some nests.

Learn names of four winged insects you see. Notice where seen. Observe sounds made by them. What harm do they do?

PHYSICAL NATURE.—Drawings made of brooks in District. Lessons on prominent geographical features after observations have been made.

OCTOBER.

PLANTS. -Lesson leaves and drawings made of them. Notice effect of frost on plants. Carrot and turnip drawn after short lessons have been given on them. Weed seeds collected.

ANIMALS.—What animals have horns, bills, web-feet, claws, combs, hoofs, fins, scales? Lessons on the dog.

PHYSICAL NATURE. - Points of compass taught. Practice as to places near at hand. Outdoor exercises in drill in above work. Notice places in District where sun's rays fall first in the morning.

NOVEMBER.

PLANTS.—Make list of fruits and vegetables stored for winter use, after short lessons have been given on each.

ANIMALS.—The care of poultry. Their protection, food and comfort.

PHYSICAL NATURE.—Lessons given on cold winds. Notice direction of winds, the prevailing winds with rain, also those when fine and cold.

Require pupils to observe sky in early evening, the moon, its change of shape, position in sky at given time.

ENVIRONMENT.—The care of animals, their protection, warmth, food. Lessons given from observations made.

DECEMBER.

PLANTS.—The bark and buds of trees. Observations made with lessons.

ANIMALS.—Lessons on the rabbit. Stories read or told of animals in warm countries with a view of contrast.

PHYSICAL NATURE.—Notice sun's position in sky at noon.

ENVIRONMENT.—Talks about the pleasures of country boys and girls in winter. Winter playthings. The Christmas tree gifts.

JANUARY.

PLANTS.—Distinguish the evergreen trees. Compare appearance of different kinds where they stand. Bring twigs to school. Make drawings.

ANIMALS.—Study the winter birds. Gather from pupils facts about each kind as to food, shelter. Lessons on the feet of birds. The horse, its food and use.

PHYSICAL NATURE.—Observations on stars. Find the largest and brightest ones seen in a clear sky in the early spring.

ENVIRONMENT.—Talks on the winter work of the men of the District. Make list of farm implements. How should they be cared for in winter?

Make a drawing of the schoolhouse and grounds. Notice the view from the schoolhouse door.

FEBRUARY.

PLANTS.—Lessons on the uses of forest trees. Make a drawing of a maple tree seen this month.

ANIMALS.—What do wild animals eat in winter? Use words to describe the different ways in which animals protect themselves or evade their enemies. What are mutton, pork, beef, tallow, lard, butter, cheese?

PHYSICAL NATURE.—Observe drifts, their cause, depth, position. Winter roads, when best. Observe the sounds heard in winter.

ENVIRONMENT.—Make a list of articles seen on a dinner table. Give use of each.

MARCH.

PLANTS.—Give lessons on seeds to be planted next month. What trees and shrubs show signs of life? Notice the difference between hard and soft woods, their bark, weight, color. Give lessons on two kinds.

ANIMALS.—Lessons on food of returning birds. Description of the cow, her care, and use to man. Make drawings of a cow and a goose.

PHYSICAL NATURE.—Tell stories about countries with high mountains, avalanches, glaciers. Notice snow slipping from roof on warm days. Compare position of sun at noon now with same last December.

APRIL.

PLANTS.—Plant seeds in house for observation purposes. Lessons on first flowers brought by pupils to school. Evergreen shrubs.

ANIMALS.—Lessons on the young of domestic animals. Also on wild geese, ducks and frogs; note when first seen this spring. Lessons on cocoons collected.

PHYSICAL NATURE.—Outdoor lessons given on home geography, taking advantage of surface of country to illustrate definitions of island, cape, bay, cove.

MAY.

PLANTS.—Prepare and plant school garden plots. Observe proper depth of covering of seeds with earth. Avoid waste of seeds. Notice tree blossoms, cones, catkins, before and after they have fallen.

ANIMALS.—Lead pupils to recognize birds by the songs or notes, also where birds build their nests. Of what are nests of robins and sparrows made? Name of work animals. Make drawings of two of them. Lessons on fowls. What fish are seen in the stream, lake, river or coast water near or in District?

ENVIRONMENT.—Make notes as result of observation of what people in the District are doing.

JUNE.

PLANTS.—Lessons given on the weeds that first appear in garden or on roadside. Observe those that grow from root of last year and those that come from seeds. Learn to recognize bark, leaves and stalks of plants by touch. Study of the strawberry plant.

ANIMALS.—Lessons on insects (caterpillars and grubs) that injure plants. Note what they do and what part of the plants they attack.

ENVIRONMENT.—What has been done with the winter implements in the District. Make a list of them.

GRADE III.

Physical map of District on large scale. Construct it gradually throughout the summer term. Indicate hilly and forest land by different shadings after observations and estimates are made by pupils under direction of teacher. Streams, brooks, creeks and rivers marked. Locate roads and bridges, churches, halls and post office. Each pupil marks on his map the location of his home. A sand table will be found most helpful in connection with the study of home geography. Every school should have one. It is easily made. A good size is four and one-half feet by three feet and four inches deep. It should be made perfectly tight, and, if possible, lined with tin or zinc. For greater convenience the supports of the table should be hinged or removable, so that when table is not in use it need not occupy so much room.

Such a table with sand, would enable the teacher with the help of pupils to construct the District in miniature, showing the hills, valleys, streams, roads, bridges, etc. The wooded portion of District might be indicated by standing twigs upright in the sand. After the sand table has been used intelligently, the map of the District can be more easily placed upon blackboard, slate or paper.

SEPTEMBER.

PLANTS.—Lessons on at least six common garden weeds; distinguish parts After examination, make a list of the different crops grown in the District. Collections made of six kinds of seeds Lessons on berries, also on seed scattering.

ANIMALS.—Young birds and fowl studied with some degree of exactness, as to covering, food, flight, protection.

PHYSICAL NATURE.—Lessons on equality of length of days and nights. Note position of sun on horizon at time of rising and setting, also position at mid day. Observations of harvest moon, the sky at dawn. Winds.

ENVIRONMENT.—Drawing made of some field or portion of home property. Lessons on road bridges.

OCTOBER.

PLANTS.—Crop ingathering. Productions of District. Under the guidance of teacher, short excursions to near woods for collections. Lessons given on these in school. Study of nuts.

ANIMALS.—The sheep. Lessons on its food, habits, value; kinds distinguished. Readings and easy lessons about wool bearing animals in other countries.

PHYSICAL NATURE. -Use features of District to explain and illustrate geographical terms studied.

NOVEMBER.

PLANTS. -Compare fir and spruce boughs. **Notice cones, rings of wood in** trunks. Lessons about threshing of grain. Compare samples of grain by weight, size and hardness.

ANIMALS. -Fur-bearing animals of District. Gathering of cocoons. Swine; value. General study of meat production.

PHYSICAL NATURE. -Notice appearance of sky. Relation of winds to temperature. Freezing and thawing of water and earth.

Practice in estimating weights of various things. Observe weight as compared with bulk.

ENVIRONMENT. -Make list of articles used in a house. Careful study of some as to use, of what made and where obtained. Make drawings of same.

DECEMBER.

PLANTS. -Samples of barks from trees, at least six kinds, distinguished and studied.

ANIMALS. -Careful study winter birds, such as chickadee, woodpecker.

PHYSICAL NATURE. -Sun's position in sky at noon now compared with same in September.

Make a drawing of the principal river, creek or brook in the District, indicating the principal kinds of trees seen along its banks and the animals found in or near its waters.

ENVIRONMENT. -Where are the farm tools and machinery kept? Why? Lessons on the effect of weather on wood and iron, either apart or combined, in utensils.

JANUARY.

PLANTS. -Make a study of a pine tree or any evergreen in the District. Draw a picture of the one studied, also of a branch.

ANIMALS. -Study some fur bearing animals, as fox, weasel, muskrat, as to habits, value, etc. Make drawing of one you have seen and examined.

PHYSICAL NATURE. -Snow flakes observed. Lessons on snow, direction of wind in fine weather, sunset, the sky in evening. Map of Parish begun, showing principal physical features and location of chief industries.

FEBRUARY.

PLANTS. -House plants studied, their value. Collect samples of woods found in District.

ANIMALS. -Care of domestic animals. After observation, talks on information gained

Construct list of words indicating: 1st, habits of animals; 2nd, their characteristics; 3rd, their uses; 4th, their colors.

PHYSICAL NATURE.—Lessons given on rocks and minerals, specimens of which have been collected by pupils in District during autumn.

ENVIRONMENT.—Lessons on tools used for working in wood. Describe the saw. Make drawings of all you study. Write paragraphs on winter outdoor amusements.

MARCH.

PLANTS.—Study of twigs and buds. Notice changes from day to day. Make drawing of those that have buds differently placed.

ANIMALS.—Milk production. Animals that give milk used for food in this and other countries.

PHYSICAL NATURE.—Melting snow, running water. What places in District lose snow first? Why? Observe the change carefully. Equal days and nights. Again note sun's position, morning, noon and night.

ENVIRONMENT.—The dining room articles. Name and describe them, give uses of each. Map of Parish begun in January completed.

APRIL.

PLANTS.—Plant seeds, bean, pea, corn, in boxes — sufficient of each so as to pull some up from time to time to observe growth. Observe and name the parts. Describe and draw. Lessons on spring flowers, wild shrubs, roots. Reasons for Arbor Day work.

ANIMALS.—Notice animal life in swamps and pools. Observe returning birds; learn something of each kind.

PHYSICAL NATURE.—Drainage, wearing of roads by running water.

ENVIRONMENT.—Map of County, begun and continued until end of June. Observations on spring work in country.

MAY.

PLANTS.—Practical work in planting. Setting out biennials to produce seeds. Encourage pupils where possible to have small garden plots at home.

Weekly compositions on progress of work outside. Composition on Arbor Day work and results.

Observe closely root hairs. What is their use? Use of roots in general.

Make list of trees with, 1st, hard wood; 2nd, soft. Observe features of each. Notice the grain of wood, sap.

ANIMALS.—Birds. Observations and lessons on nest building and eggs. Where do they build? of what? Six harmful insects observed.

PHYSICAL NATURE.—Plan of school ground made.

ENVIRONMENT.—Drawings made of District features.

JUNE.

PLANTS.—Five garden weeds studied. Grasses observed.

ANIMALS.—Birds, the summer warbler, cedar wax wing, American goldfinch and humming bird. Describe them, make drawings. Continue study of insects observed in May.

PHYSICAL NATURE.—Lessons on color as illustrated in nature. Harmony of colors.

The summer sky, clouds, twilight. Length of day, position of sun.

Review of spelling of words used in year's Nature Study Course.

GRADE IV.

SEPTEMBER.

PLANTS.—Lesson on at least six common field weeds. Collecting ripe weeds seeds. Have them thoroughly cleaned and bottled. Practice in distinguishing from sight. Mounting plants. Study of crops in District. Close study of potato plant and its cultivation. Drawing made of potato plant as it appears both above and below surface of soil. Drawing made of an apple cut longitudinally and across showing seeds in cells.

ANIMALS.—Lessons on fruit blights. Three injurious insects carefully studied.

PHYSICAL NATURE.—Effects of climatic conditions on the country's productions. Hail and electrical storms.

ENVIRONMENT.—Weekly compositions on harvesting. Condition of roads to facilitate marketing.

OCTOBER.

PLANTS.—Study of plants whose root, stem, leaf, fruit or seed are used for food — two of each kind. Root crop of the District studied. Estimate qauntities grown.

ANIMALS.—Game animals, moose, bear, deer, duck, partridge, their habits, food, value to Province. Drawings made of animals studied.

PHYSICAL NATURE.—The hunter's moon. Estimate distances using rule, rod measure, chain and 100 yards, to test. Measure area. The autumn sky

ENVIRONMENT.—Value of season's yield of butter and cheese, of eggs and pork.

NOVEMBER.

PLANTS.—Study analytically fall and winter buds. The tamarack tree, make drawing, observe character of its wood, compare with other trees. Study of cedar and hemlock.

ANIMALS.—Lessons on cattle, their structure, economic value. Make drawings of an ox, showing position of different cuts of beef, learn names.

The geographical homes during winter of the birds that have left us. Lessons given on their winter life.

PHYSICAL NATURE.—Collect samples of soil for winter and spring use. Examine ravines, creek banks, sides of steep hills and note rock formation.

ENVIRONMENT.—Advanced lessons on care of machinery used in summer, rust, checking of wood, etc.

DECEMBER.

PLANTS.—Compositions on forests in winter. Lessons on hard wood trees.

ANIMALS.—Horses, various kinds and breeds. History of domestication. Make drawing. Note habits. Name the various parts of the horse.

PHYSICAL NATURE.—Lessons on winter solstice, conditions in northern countries. The evening sky. The milky way.

ENVIRONMENT.—Farm implements and machinery. Give use of all kinds used in District. Lessons on milk, the cream separator. Arithmetical questions in which contrasts are made between summer and winter prices of farm products.

JANUARY.

PLANTS.—Lumber, its manufacture, operations in woods. Lessons on the fruits we import. What countries do they come from?

ANIMALS.—Food and care of stock lessons. A study of fur, kinds, value The winter home of wild animals. Domestic birds.

PHYSICAL NATURE.—Lever, inclined plane. Adhesion, cohesion in liquids.

ENVIRONMENT.—What are the exports of the District? Where are the markets? Farm arithmetic.

Make drawings of a hatchet and auger. Name some things you have made by using these or other tools. Name other tools.

FEBRUARY.

PLANTS.—Collections of woods made. Lessons on uses. Classify maples

ANIMALS.—Winter birds, more accurate study of four kinds.

PHYSICAL NATURE.—Account for open springs in winter. Lessons on rock formation. Analysis of soils collected in fall. Easy experiments on soils by water tests. What is loam? Clay? Distinguish. Lessons on stars, their position in sky. Moon's phases.

ENVIRONMENT.—Compositions on winter amusements.
Farm arithmetic.

MARCH.

PLANTS.—History of plants cultivated in this province. Preparation of seeds to be used in garden.

ANIMALS.—Animals of other countries useful to man for food, for labor, for travelling. Make comparisons with ours. Use pictures for illustrations.

PHYSICAL NATURE.—What are slate, marl, clay, sandstone, peat, humus? Give lessons on each.

Compare climate of New Brunswick with that of Manitoba and British Columbia

Trace out reasons for differences. Use weather report to sum up climate of neighborhood.

ENVIRONMENT.—Farm preparations in neighborhood. Farm arithmetic.

APRIL.

PLANTS.—Test farm and garden seeds. Study of the alder, cedar, maple. Identify and name some wild plants of spring. Describe maple sugar making.

ANIMALS.—Lessons on shell fish of the Province, their value, the method of catching them. Identify and describe some spring birds.

PHYSICAL NATURE.—Notice effects of winter frosts on land. Lesson on sound, echo, reflection, radiation.

ENVIRONMENT.—Arbor Day preparations made. Cleaning up of grounds at school and at home. Learn how to plant a tree.

MAY.

PLANTS.—School garden work. Lessons on flowering shrubs and vines, also on the pruning of trees and shrubs.

Encourage pupils to have small flower gardens at home, also home plots of vegetables and grains.

ANIMALS.—Earth worms. Study of destructive insects, their method of work, how to deal with them. Careful study of the four stages of insect life.

River and shore fish. Lessons on their value, method of catching and preserving. Make drawings of shad, salmon, trout, or other fish known in the District.

JUNE.

PLANTS.—School garden work continued. Study of small fruit blossoms. Learn to recognize various kinds of trees at a distance by color of foliage and general shape. Notice shades of green.

ANIMALS.—Observe bees, ants, spiders. Give lessons. Make a list of the birds you can recognize by their songs and notes. Write an essay on our song birds you know.

PHYSICAL NATURE.—Lessons on dew, conditions of despoit.

ENVIRONMENT.—Lead pupils to appreciate beautiful views in the District. District industries.

DECEMBER.

PLANTS. —The natural seeding of wild plants and trees.

ANIMALS. —An essay on the cow, as to care, food value, kinds. Have a statement made of initial cost and yearly keep, with counter statement of returns during year, to show profit or loss

Study of nests of animals and insects, as hornets.

PHYSICAL NATURE.—Learn the signs of the zodiac. Study during the winter several constellations. Locate them in the sky. Learn names and positions of some noted stars

Lessons on springs, wells, value of pure water, sanitary conditions, fresh air.

ENVIRONMENT.—Composition on the social life of the District.

JANUARY.

PLANTS.—Forest products, value, conservation of forests, lumber trade, with what countries. Estimate of amount of forest land in District. How are logs measured?

ANIMALS.—Study and observation of winter birds.

PHYSICAL NATURE. —Examine implements made of wood, of iron and wood, of iron. Make a list of each kind and give use.

The aurora.

ENVIRONMENT. —Study of Denmark and Holland as to productions, habits and occupations of people, their thrift, cultivation of soil, trades and industries. Secure so far as possible detailed information. Make comparison with New Brunswick.

Farm book-keeping, accounts, receipts, notes, business letters.

FEBRUARY.

PLANTS.—Lessons on grafting and practice on branches and small trees brought into the school.

ANIMALS. —The winter life of wild animals. From lessons, observation and reading gather information. Notice tracks in snow. Drawings made from observations.

PHYSICAL NATURE.—Lessons on minerals which are constituents of soil, also study of soil and its fertility. Reasons snow and rain fall, effects of ice on land surface, on plant roots.

ENVIRONMENT. —Preservatives of wood in implements or exposed parts of buildings. A farm layout.

Farm book-keeping continued.

Field and stock accounts, balance sheet, profit and loss account

GRADE V.

SEPTEMBER.

PLANTS.—Lessons with obersvations on the effect of weeds, methods of eradication. Make a list of the weeds you know and whose seeds you can identify. Mount plants.

Note differences between trees, shrubs, herbs. Observation and study of seed dispersion. Study and identification of the ferns in the District. What are smut, rust? Observe and give lessons.

ANIMALS.—Lessons on our birds of prey. Study the weevil, mosquito, codling moth (apple worm), bats.

PHYSICAL NATURE.—Fertile and barren soil observed and described. Acid soils. Value of lime in soil.

ENVIRONMENT.—Semi-monthly compositions on harvesting.

OCTOBER.

PLANTS.—Make a thorough study of the apple. Learn to recognize six kinds. Practice in selecting best kernels of grain, choice apples and vegetables.

Make a study of seed vessels of six plants. Observe arrangement of seeds.

ANIMALS.—Lesson on the principal breeds of horses, as to their uses. Which ones are best adapted to the conditions of the District?

PHYSICAL NATURE.—Lessons on eclipses of sun and moon.

ENVIRONMENT.—Make computations of the value of different crops in the District. Work out yield per acre for each crop.

NOVEMBER.

PLANTS.—The hay crop. The plants that make hay Fodder, corn. Bulbs as flowering plants.

ANIMALS.—Various breeds of poultry. Make drawings of one or two breeds of each most common in the District. Lessons on food and preparation for market. Milk, butter, cheese, their elements, value, analysis.

PHYSICAL NATURE.—What are planets? What ones do you see this month? Lessons on the evening sky.

ENVIRONMENT.—Lessons on the care of apparatus, books, machinery. Note the yearly loss from neglect of machinery on farms.

Have readings from time to time through the winter months from Tennyson, Whittier and others and note their knowledge of nature.

MARCH.

PLANTS.—Lessons on sap, sap-wood, inner bark, evergreen cones, root growth. Study of plants, their composition, what they take out of the soil, of the effects of climate on soil productions.

ANIMALS.—Migratory birds. Search for insect cocoons on trees in the District.

PHYSICAL NATURE.—Study of weather reports.

ENVIRONMENT.—Transactions of buying and selling, combining percentage, discount, measurements, commission. Neat arrangement of work required. Systematic book-keeping.

Commercial geography. Shipping news followed. Exports and imports.

APRIL.

PLANTS.—Making of hot beds and planting same. Plans for successful Arbor Day work and school ground improvement, also school garden begun. Test seeds to plant. Lessons on how to prune trees, practical work done. Shrubs, evergreens and deciduous.

ANIMALS.—Life in ponds and brooks observed and studied. Continued story of birds of passage and of birds that come to us for the summer.

PHYSICAL NATURE.—Study of soil formation. Methods of cultivation of soil. Washing of soils, how best prevented.

ENVIRONMENT.—Compositions on spring work on farm, stream driving.

MAY

School garden work.

PLANTS.—Crop rotation study. Practice in distinguishing spices, fruits, and blossoms, by odors and leaves; seeds and barks, by touch.

Study of ornamental trees and shrubs, make drawings. Study and plan improvements of school grounds.

School garden work.

ANIMALS.—Lessons on structure of honey comb, insect webs. Young animals studied. Observation of bats, moles.

PHYSICAL NATURE.—Notice deposits from spring freshets. Lessons on climate, winds, showers, rainbows, fog, thunder and lightning.

ENVIRONMENT.—Plans to improve home and landscape views, roadsides and roads in Districts. Drainage. Doing emphasized.

JUNE.

PLANTS.—Lessons on the spraying of fruit trees, and mixtures used for the purpose. School gardening and home plots.

ANIMALS.—Test your knowledge of birds by making a list of those you can recognize by sight and by song. Write an essay on the birds of the District. Night hawks, whip-poor-wills and chimney swifts.

PHYSICAL NATURE.—Review of year's work.

ENVIRONMENT.—Lessons on the economic value of ornamentation of school and home grounds. Effects on character of people. Lessons on ventilation, sanitation, cleanliness.

LIST OF BOOKS RECOMMENDED TO BE HELPFUL IN TEACHING NATURE AND AGRICULTURE.

1.	"Agriculture, Through the Laboratory and School Garden," by C. R. Jackson and Mrs. L. S. Dougherty. Price	$1 50
2.	"Rural School Agriculture," by Charles M. Davis, M. A. S. Price	1 00
3.	"How Crops Grow," by Prof. Samuel W. Johnson. Price	1 50
4.	"Book-Keeping for Farmers," by T. Clark Atkeson. Price. Published by Orange Judd Co., New York. May be obtained through Wm. Briggs, Toronto.	25
5.	"Public School Nature Study," by Crawford et al. Copp, Clark Co., Toronto. Price	50
6.	"First Studies in Plant Life," by Atkinson. Ginn & Co., Boston. Price..	75
8.	"Wild Birds in City Parks," by H. E. and A. H. Walter. Mumford, Chicago. Price..	50
9.	"Hand Book of Birds of Eastern North America," by Frank M Chapman.	
10.	"Bird Neighbors," by Neltje Blanchan.	
11.	"Elementary Agriculture and Nature Study," by Dr. J. Brittain. Price Published by W. J. Gage & Co., Toronto, Ont.	.75
12	"How to Teach the Nature Study Course," by Prof. John Dearness. Price.................. Copp, Clark Co., Toronto.	60
13.	"Bird Guide — Land Birds East of the Rockies," by Chester A. Reed. Price..................................	.75
14.	"Flower Guide — Wild Flowers East of the Rockies." Price .... Both published by Chas. K. Reed, Worcester, Mass.	.50
15.	"Nature Study with Common Things," by M. H. Carter. Price Published by American Book Co.	60
16.	Johannes "Flyers, Creepers and Swimmers." Price .... Morang & Co.	60
17.	"How we are Clothed. "How we are Fed. "How we Travel. Price, each .... McMillan & Co., New York.	.30
18.	"Corn Plants," by F. L. Sargent. Price .... Published by Houghton, Mifflin & Co., Boston.	.75

19. "Beginner's Botany," by L. H. Bailey. Price 60
    Published by McMillan Co., of Canada, Toronto.
20. "Nature Study and Life," by Prof. C. F. Hodge. Price 1 50
    Published by Ginn & Co., New York.
21. "Squirrels and Other Fur-Bearers," by John Burroughs. Price 60
    Published by Houghton, Mifflin & Co., Boston.
20. The following, published by Charles Scribner's Sons, New York, are excellent books:
    "How to Know the Wild Flowers," by Mrs. Dana. Price 2 00
    "How to Know the Ferns," by Parsons. Price 1 50
    "Our Northern Shrubs," by Keeler. Price 2 00
    "Our Native Trees," by Keeler. Price 2 00
    "The School Garden Book," by Weed and Emerson. Price 1 25
    "Agriculture for Common Schools," by Fisher and Cotton. Price 1 00
    "The Beginner's Garden Book," by Allen Fench. Price 1 00
    "Beginnings in Agriculture," by A. R. Mann. Price 75
    Published by the McMillan Co., of Canada.

Annual Report of Commissioner of Agriculture for New Brunswick. Address, Fredericton, N. B.

Report of the Minister of Agriculture, Canada, Ottawa.
Experimental Farm Reports.
First Book in Rural Science, 40 — J. J. Green.
Warren's Elements of Agriculture, $1.10.
The Soil, $1.50 -- F. H. King.
Published by the McMillan Co., of Canada, Ltd., Toronto.
Domestic Birds, $1.35 — J. H. Robinson.
Published by Ginn & Co., Boston.
"Agriculture for Beginners," by Burkett, Stevens & Hill. Price 80

Farmer's Bulletins, published by the U. S. Department of Agriculture. Price per copy, six cents. Nos. 134, 186, 195, 218 and others.

Address: SUPERINTENDENT OF DOCUMENTS,
Government Printing Office,
Washington, D. C.

Bulletins issued at Toronto, Fredericton and Ottawa.

Catalogues of Nature Study and Agricultural Books may be obtained of the following:

MacMillan & Co., London and New York.
Appleton & Co., New York.
Ginn & Co., Boston.
Wm. Briggs, Toronto
"Handbook of Nature Study," by Anna B. Comstock. Price 3 25
Bird Note Books, Nos. 1 and 2.
Tree Note Book, No. 1.
Published by the Comstock Publishing Co., Ithaca, N. Y.

Elementary Agricultural Education

Regulation 50 (Authorized by the Board of Education, April 23, 1914)

1.—Any Board of School Trustees that provides for and satisfactorily maintains instruction in Elementary Agriculture with School Gardening, in accordance with the Course prescribed by the Board of Education in this subject, shall be entitled to receive a special grant of Thirty Dollars per school year. In case, however, the full amount of such grant has not been expended for such maintenance, as shown by a statement of expenditure submitted by the Board of School Trustees at the close of each term, the payment of an amount equal to that expended shall be made.

2.—The grant to Boards of School Trustees for the first year, after Agricultural Instruction with School Gardening has been undertaken as a permanent and integral part of the school work, shall be Fifty Dollars, and thereafter as specified in Section 1 above.

3.—The Minister of Agriculture shall pay to the certificated teacher who carries on this work satisfactorily, as shown by reports of the Director, a special grant, at the rate of Fifty Dollars per school year.

Teachers with only one session of special training in Elementary Agriculture with School Gardening shall, upon the recommendation of the Director, receive a special grant for satisfactory teaching in this work, at the rate of Thirty Dollars per school year.

4.—In all cases the amounts paid for this special work to both teachers and School Boards must be approved and recommended by the Director.

5.—School officers intending to introduce or to continue this work, and to qualify for the grants must give notice to the Director of such intention on or before the first day of September, or the seventh day of January in each school year. This notice shall be signed by the Trustees, or their Secretary by order of the Board, and by the teacher.

6.—The time to be allotted to this work shall be, not more than one and one-half hours per week, during the school year.

7.—Throughout the year the teacher shall record from week to week on a form supplied by the Director, the work carried on in the garden and the instruction given in the school, specifying the subjects taken up and the method followed. At the end of each term a summary of these records shall be included in the Agricultural Instruction Return. These weekly records shall be available to both Inspectors and Directors at all times.

8.—At the meeting of the Board of Education before the end of each school year, there shall be apportioned from the amount of money set apart by the Minister of Agriculture for Elementary Agricultural Education, a fund to be used for the encouragement of schools and pupils, to be applied as prizes in School Garden, home plot work and school fairs.

For this purpose each County shall form a unit for distribution. All work thus encouraged shall be carried on under the instruction and supervision of the teachers in the public schools.

9.—At the same time an amount shall also be determined upon for the improvement of school grounds, which afford an opportunity for the care and study of trees, shrubs and vines, for the purchase of pedigreed seeds and bulbs and for extending such practical work along agricultural lines and the improvement of country life.

10.—When the equipment on which special grants to Trustees have been paid remains unused for two years, said equipment may be transferred, on recommendation of the Director, to another school in the Province.

NOTE:—The pupils receiving instruction in this subject should be encouraged to make notes and records in a systematic manner, having special reference to Nature Study observations, agricultural conditions and school garden work. These records books should receive recognition in determining the standing of pupils. Care should be taken to interest and encourage pupils, rather than to urge them in this special work.

Education Office,
May 1st, 1914

W. S. CARTER,
Chief Sup't. Education.